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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,653	03/11/2004	Michel Delzenne	Serie 6150	6322

7590

02/08/2005

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EXAMINER

PASCHALL, MARK H

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,653

Applicant(s)

DELZENNE ET AL.

Examiner

Mark H Paschall

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>06-21-04</u> . | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 3742

DETAILED ACTION

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-13,17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelkar et al in view of Fein. Kelkar et al teach the claimed plasma-cutting torch except for showing use of a hydrogen/nitrogen mixture as the plasma gas. Note that Kelkar et al teach both hydrogen and nitrogen, but not together when used in combination with carbon dioxide. The patent to Fein is

Art Unit: 3742

applied for teaching that. A plasma cutting torch having a dual gas flow with the primary plasma gas comprising a hydrogen/nitrogen mixture as claimed. See Fein column 2 lines 65-70 with the primary gas described as also comprising hydrogen, nitrogen and mixtures thereof. Use of the same leads to cutting of thicker work and harder to cut work such as stainless steel, with less reactive damage to the tungsten electrode as the secondary reactive gas carbon dioxide fed downstream to the tungsten electrode. In view of this teaching it would have been obvious to modify the Kelkar et al cutting torch to use a nitrogen/hydrogen mixture in lieu of a hydrogen or nitrogen plasma gas, since such modification would attain the benefit of cutting hard and thicker metal work more efficiently. As per claims 12 and 13 note that carbon dioxide alone is defined as one secondary gas in the Kelkar et al system, satisfying the "at least 50 %" limitation in claims 12 and 13. As per claim 17 note that the emissive insert is hafnium in Kelkar et al and it is considered obvious to the artisan to choose other insert materials such as tungsten, with the same being conventionally recognized in the art. Use of other electrode materials such as copper or the alloys mentioned in claims 18 and 19, the choice of the particular electrode materials being conditional in response to machining parameters, power levels of the torch and the work material being cut. As per claim 23 note that both Kelkar et al and Fein each teach the annular flow of secondary gas around the sheath of plasma gas as claimed. As per claims 24 and 25 it is considered an obvious design choice dependent on discretion of the operator to feed the secondary gas prior to or after the arc is generated since this reactive gas is fed to the plasma

Art Unit: 3742

jet downstream of the electrode, with no detrimental effect on the electrode in either case. Adjustment of the gas pressures in response to work thickness is obvious to one of ordinary skill in plasma cutting since a higher gas pressure is needed to cut thicker work.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over kelkar et al in view of Fein as applied to claims 11-13, 17-27 above, and further in view of Gourlaouen et al. kelkar et al as modified teach the claimed subject matter except for the claimed hydrogen content of the plasma gas mixture.

Gourlaouen et al teach in column 1 lines 38-45 that hydrogen/nitrogen plasma gas mixtures may be mixed in accordance with chosen parameters, with up to 25% hydrogen being set forth. Less deterioration of the nozzle is the attained benefit and in view of this teaching it would have been obvious to modify kelkar et al further to include these hydrogen percentages, to attain less deterioration of the torch components such as the nozzle.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

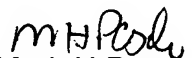
Couch, jr. et al are cited for disclosing pertinent plasma cutting methods.

Art Unit: 3742

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark H Paschall whose telephone number is 703 308-1642. The examiner can normally be reached on 7am - 3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (703) 305-5766. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mark H Paschall
Primary Examiner
Art Unit 3742

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